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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,845	06/18/2001	Kevin J. Smart	INARI.052A	9959
20995	7590	11/03/2004	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			TORRES, JUAN A	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/883,845	Applicant(s) SMART ET AL.	
	Examiner Juan A Torres	Art Unit 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 11-23 and 47-50 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24-41 and 46 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-9 and 42-44 is/are rejected.
- 7) ☒ Claim(s) 6, 10 and 45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>09232004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 11-23 and 47-50 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claims, there being no allowable generic or linking claim. Election was made **without** traverse in the reply by a phone call on October 4, 2004 at 4:30 by Lee W. Henderson attorney of the applicants.

Drawings

The drawings are objected to because at least have the following errors:

Figure 1 block label (112) receiver it is suggested to be label (113) (see page 13 line 11 of the specification)

Figure 3B block (323) it is suggested to be label A/D (see page 15 line 31 of the specification); block (324) it is suggested to be label FFT (page 16 line 2 of the specification); block (332) it is suggested to be label SERIAL-PARALLEL.

Figure 4 doesn't show S_i and S_{i+1} (see page 17 line 11 and 12 of the specification); label N_B it is suggested to be label N_b page 17 (see line 14 of the specification).

Figure 8 label N_B it is suggested to be label N_b (see page 17 line 14 of the specification).

Figure 9A block (325) it is suggested to be label (925) (see page 21 line 21 of the specification).

Figure 9A block (924) label OFT it is suggested to be label DFT (see page 21 line 20 of the specification).

Figure 9B label "DATA OUT M" it is suggested to be label "DATA OUT M-1" (see page 22 lines 19 and 20 of the specification).

Figure 10A the equation

$$e^{\frac{-j2\pi k}{N}M-1}$$

it is suggested to be:

$$e^{\frac{-j2\pi k_{M-1}}{N}}$$

(see page 23 line 6 of the specification).

Block (1031) DEMO_M it is suggested to be label DEMO_{M-1}

Figure 13 block (1203) it is suggested to be label (1303) (see page 27 lines 9 and 10 of the specification).

Figure 15 block (150) it is suggested to be label (1502) (see page 35 lines 8 and 9 of the specification).

Figure 16 doesn't show b'_1 and b'_2 (see page 39 lines 12, 13, 14 and 15 of the specification).

Figure 17A doesn't show b'_1 and b'_2 (see page 39 lines 26 and 27 of the specification). Label y_k and x_k at the bottom of the figure it is suggested to be label y'_k and x'_k (see page 40 lines 3 and 5 of the specification).

Figure 17B doesn't show b'_1 and b'_2 (see page 39 lines 26 and 27 of the specification). Label y_k and x_k at the bottom of the figure it is suggested to be label y'_k and x'_k (see page 40 line 13 of the specification).

Figure 21 label ACC it is suggested to be label ADC (see page 41 line 28 of the specification).

Figure 21 the equation

$$e^{-j\omega,n}$$

should read:

$$e^{-j\omega_1 n}$$

(see page 42 line 3 of the specification).

Figure 22 label ACC it is suggested to be label ADC (see page 42 line 10 of the specification).

Figure 22 the equation

$$e^{-j\omega,n}$$

it is suggested to be:

$$e^{-j\omega_1 n}$$

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figures 1 to 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are:

Page 13 line 13 "m-th" it is suggested to be label "M-th".

Page 14 line 8 " f_j " it is suggested to be label " f_i ".

Page 16 line 2 "323" it is suggested to be label "332".

Page 18 line 28 "323" it is suggested to be label "324".

Page 19 line 1 "323" it is suggested to be label "324".

Page 19 line 6 "323" it is suggested to be label "324".

Page 19 line 7 "323" it is suggested to be label "324".

Page 22 line 17 "922" it is suggested to be label "923".

Page 22 line 19 "922" it is suggested to be label "923".

Page 22 line 19 "first" it is suggested to be label "M-th".

Page 22 line 20 "922" it is suggested to be label "923".

Page 22 line 23 "9" it is suggested to be label "9A".

Page 23 line 6 the equation

$$\phi_i = e^{\frac{j2\pi k}{N}}$$

it is suggested to be:

$$\phi_i = e^{\frac{-j2\pi k}{N}}$$

Page 23 line 7 "k₁" it is suggested to be label "k_i".

Page 23 line 21 "9" it is suggested to be label "9A".

Page 23 line 24 the equation

$$e^{\frac{-j2\pi k_{in}}{N}}$$

it is suggested to be:

$$e^{\frac{-j2\pi k_{on}}{N}}$$

Page 24 lines 22 and 27 it is suggested to be review the equations

Page 25 line 25 "10" it is suggested to be label "10A".

Page 26 line 15 "1202" it is suggested to be label "1201".

Page 27 line 19 "1202" it is suggested to be label "1201".

Page 27 line 26 "1203" it is suggested to be label "1303".

Page 28 line 4 "1203" it is suggested to be label "1303".

Page 28 line 6 "1203" it is suggested to be label "1303".

Page 32 line 12 "1491" it is suggested to be label "1419".

Page 32 line 19 "1491" it is suggested to be label "1419".

Page 32 line 21 first "1421" it is suggested to be label "1420".

Page 32 line 24 "M_B - 1" it is suggested to be label "M_B".

Page 32 line 25 "M_B" it is suggested to be label "M_B-1".

Page 36 line 2 first "1514" it is suggested to be label "1515".

Page 36 line 3 first "1524" it is suggested to be label "1525".

Page 36 line 10 "1504" it is suggested to be label "1512 and 1522".

Page 40 line 10 "1902" it is suggested to be label "1901".

Page 42 line 13 "-3" it is suggested to be "-2".

Page 42 line 15 "3" it is suggested to be "1".

Page 42 line 27 "2202" it is suggested to be label "2102".

Page 42 line 28 "2202" it is suggested to be label "2102".

Claim Objections

Claim 45 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is

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required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 45 is the same as claim 41.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 42-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 42 recites the limitation "said at least on equalizer" in page 48 line 7. There is insufficient antecedent basis for this limitation in the claim. It is suggested to change the dependency of claim 42 from claim 40 to claim 41.

As per claim 43 recites the limitation "said at least on equalizer" in page 48 line 11. There is insufficient antecedent basis for this limitation in the claim. It is suggested to change the dependency of claim 43 from claim 40 to claim 41.

As per claim 44 recites the limitation "the communication transmitter" in page 48 line 14. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by the Tzannes (US 5497398).

As per claim 1 Tzannes (US 5497398) discloses a communications receiver for receiving data transmitted by a transmitter, comprising a time-domain to frequency-domain transformer (figure 1 block 120, column 3 lines 62-63) configured to receive time-domain input data values and produce frequency domain output data values for a plurality of output channels, such that for each input data value said transformer is configured to produce one output data value for each channel (figure 9 block 545, column 19 line 64).

As per claim 3 Tzannes (US 5497398) discloses a receiver comprising a time-to-frequency converter (figure 1 block 120 column 3 line 63), said time-to-frequency converter configured to receive a stream of data samples and calculate M streams of output values for M communication channels (figure 1 block 122 column 4 line 57), said converter configured to calculate each of said output values using W input values (column 4 lines 60-62).

As per claim 4 Tzannes (US 5497398) discloses a receiver comprising a time-to-frequency converter (figure 1 block 120 column 3 line 63), said time-to-frequency

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converter configured to receive a stream of data samples and calculate M streams of output values for M communication channels (figure 1 block 122 column 4 line 57), said converter configured to calculate each of said output values using W input values (column 4 lines 60-62) where M is not equal to W (column 4 line 62).

As per claim 5 Tzannes (US 5497398) discloses a new output value is computed for each channel each time said converter receives a new input value (column 5 line 4-6).

As per claim 9 Tzannes (US 5497398) discloses in column 6 line 52 that the value of W is the basic function length.

Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Bingham (US 5557612). Bingham (US 5557612) discloses a plurality of decoders, for example QAM decoder, each of said decoders configured to decode frequency domain data for one of said channels (figure 9 block 545, column 19 line 62-64).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tzannes (US 5497398), and further in view of Hershey (US 5844949). Tzannes (US 5497398) teaches claim 3. Tzannes (US 5497398) doesn't teach the use of lower lines as a transmission medium. It is well known and Hershey (US 5844949) discloses the use of

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power lines for data transmission using time-to frequency converters (column 6 lines 2-5). Power lines could be used to receive signals in the time domain. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a wired medium that connect homes with centralized points to use power lines for data transmission using time-to frequency converters as indicated by Hershey (US 5844949).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tzannes (US 5497398), and further in view of Chow (US 5479447). Tzannes (US 5497398) teaches claim 3. Tzannes (US 5497398) doesn't teach the use of wireless networks as a transmission medium. Chow (US 5479447) teaches that the receiver is configured to receive communication signals from a wireless network (column 6 lines 8-10). Wireless networks can be used to receive signal en the time domain. It would have been obvious to one having ordinary skill in the art at the time the invention was made to communicate points that doesn't have a physical medium between them to use a wireless network medium using time-to frequency converters as indicated by Chow (US 5479447).

Allowable Subject Matter

Claims 6 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 24-41 and 46 are allowable over prior art (if the above objections are overcome).

The following is an examiner's statement of reasons for allowance: claim 24 – 41 and 46 are allowed because the references cited fail to teach, as applicant has, a communication receiver configured to receive data transmitted on a plurality of carriers, comprising: a sub-band filter for separating a received analog signal into a plurality of separate sub-band signals corresponding to a plurality of sub-bands, where at least one of said sub-bands comprises a plurality of sub-channels, said plurality of sub-channels comprising a first sub-channel and a second sub-channel; an analog to digital converter configured to convert a first sub-band signal into a first sub-band digital data stream; a first sliding-window transform configured to transform said first sub-band digital data stream into a first channel data stream; and a second sliding-window transform configured to transform said first sub-band digital data stream into a second channel data stream, as the applicant has claimed.


MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on M-F 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAT

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10/7/2004